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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PARK, VAUGHAN & FLEMING LLP
508 SECOND STREET
SUITE 201
DAVIS, CA 95616

EXAMINER	
SALAD, ABDULLAHI ELMI	
ART UNIT	**PAPER NUMBER**
2157	

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/662,553	ITERUM ET AL.	
	Examiner	Art Unit	
	Salad E Abdullahi	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. The amendment filed on 1/29/2004 has been received and made of record.

2. This application has been reviewed. Original claims1-43 are pending. The rejection cited stated below.

3. Applicant's argument with respect to claims 1-43 have been considered but are not persuasive for the following reasons.

4. Applicant alleges "in the present invention the primary server periodically sends checkpoint information to one or more secondary servers act as backup servers for the primary server using the checkpoint information and can immediately a assume the function of primary server using the checkpoint information, unlike in Peterson, the secondary server can do so without waiting for configuration information to arrive from the remaining nodes. Examiner respectfully disagrees, because Pederson discloses the master server periodically transmits a declare message to other servers of the network to dynamically select a master server in case of the master server failure (see col. 4, lines 20-31 and col. 5, lines 6-20).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371□ of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIA) do not apply to the examination of this application as the

application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIA (pre-AIA 35 U.S.C. 102(e)).

6. Claim 1-43 are rejected under 35 U.S.C. 102 (e) as being anticipated by Pedersen et al., U.S. Patent No. 5,862,348.

As per claims 1 and 13, Pedersen discloses a method, and a computer readable-storage medium for dynamically selecting a node to host a primary server (master server) for a service from a plurality of nodes (34, 26, 26') in a distributed computing system, comprising:

- periodically sending checkpoint information from primary server to a secondary server (see col. 5, lines 6-20);
- receiving an indication that a state of the distributed computing system has changed (receiving an election request or detecting a node/server of the distributed system has failed) (see col. 4, lines 20-31);
- in response to the indication, determining if there is not already a node hosting the primary server for the service(see col. 4, lines 32-54); and
- if there is not already a node hosting the primary server, selecting a node to host the primary server based upon rank information for the nodes (see col. 4, lines 20-54 and col. 5, lines 20-48), wherein the rank information specifies whether the selected node is secondary server which has received the checkpoint information, whereby the secondary server is able to take over for the primary

server without having to wait to receive additional configuration information(see col. 4, lines 20-54).

In considering claims 2 and 14, Pedersen discloses a method and a computer readable-storage medium, wherein selecting the node to host the primary server involves:

- assuming that a given node from the plurality of nodes (34, 26, 26')in the distributed computing system (10) hosts the primary server (master server) (see col. 2, lines 54-66),
  communicating rank information between the given node and other nodes in the distributed computing system, wherein each node in the distributed computing system has a unique rank with respect to the other nodes in the distributed computing system (see col. 4, lines 20-54),
  comparing a rank of the given node with a rank of the other nodes in the distributed computing system (see col. 4, lines 20-54), and
  if one of the other nodes in the distributed computing system has a higher rank than the given node disqualifying the given node from hosting the primary server (see col. 4, lines 20-54 an col. 5, lines 31-48).

In considering claims 3, and 15, Pedersen discloses a method and a computer readable-storage medium further comprising, if there exists a node that is configured to host the primary server, allowing the node that is configured to host the primary server to communicate with other nodes in the distributed computing system in order to

disqualify (remove) the other nodes from hosting the primary server (see col. 5, lines 6-20).

In considering claims 4 and 16, Pedersen discloses a method and a computer readable-storage medium, wherein assuming that the given node hosts the primary server involves:
maintaining a candidate variable in the given node identifying a candidate node to host the primary server (using unsigned short word in which bits are flags to indicate a node is statically configuring to be a master server) (see col. 4, lines 55 to col 5, lines 5); and initially setting the candidate variable to identify the given node (see col. 4, lines 55 to col 5, lines 5).

In considering claims 5 and 17, Pedersen discloses a method and a computer readable-storage medium further comprising, after a new node has been selected to host the primary server, if the new node is different from a previous node that hosted the primary server, establishing connections for the service to the new node (see col. 5, lines 49-54 and col. 6, lines 37-61).

In considering claims 6 and 18, Pedersen a method and a computer readable-storage medium further comprising, after a new node has been selected to host the primary server, if the new node is different from a previous node that hosted the primary server, configuring the new node to host the primary server for the service (see col. 5, lines 49-54 and col. 6, lines 37-61).

In considering claims 7 and 19, Pedersen discloses a method and a computer readable-storage medium further comprising restarting the service if the service was interrupted as a result of the change in state of the distributed computing system (that is establishing or re-mapping connections to point to the new master node once new master node is selected) (see col. 5, lines 49-54 and col. 6, lines 337-61).

In considering claims 8 and 20, Pedersen discloses a method and a computer readable-storage medium, wherein the given node (34, 26, 26', 26") in the distributed computing system (10) acts as one of:
a host for the primary server for the service (see fig. 1, and col. 2, line 54 to col. 3, line 4 where a given node 34 acts as master server for the service).
Note: Examiner only considers the limitation, wherein the given node acts as host for the primary server for the service (see claim objections above).

In considering claims 9 and 21, Pedersen discloses a method and a computer readable-storage medium further comprising, upon initial startup of the service (upon re-booting of service) selecting a highest ranking spare (highest ranking standalone application server 26' or 26") to host the primary server for the service (see col. 5, lines 6-20).

In considering claims 10 and 22, Pedersen discloses a method and a computer readable-storage medium further comprising allowing the primary server (master computer) to configure spares (application servers 26' and 26") in the distributed

computing system to host secondary servers (26) for the service (see col. 4, lines 55 to col. 5, line 5, and col. 2, lines 54 to col. 3, line 4, where any of the application servers 34, 26, 26' and 26" can be statically configured to a given rank i.e., primary server etc, based on a predetermined criteria such that when the primary server fails the application server with second highest criteria e.g. NT domain controller, 26 or 26' with the highest ranking will replace the failed master server).

In considering claims 11 and 23, Pedersen discloses a method and a computer readable-storage medium, wherein comparing the rank of the given node with the rank of the other nodes in the distributed computing system involves considering a host for the primary server (34) to have a higher rank than a host for a spare (server 26') and considering a host for a secondary server (26) to have a higher rank than a spare (26')(see col. 4, lines 35 to col. 5, line 5, where each node of the network maintains an election criteria which can be statically configured).

In considering claims 12 and 24, Pedersen discloses a method, a computer readable-storage medium, wherein disqualifying the given node from hosting the primary server involves ceasing to communicate rank information between the given node and the other nodes in the distributed computing system (that is dropping out of the election process) (see col. 5, lines 31-48).

As per claim 25, Pedersen discloses an apparatus dynamically selecting a node to host a primary server (master server 34) for a service from a plurality of nodes (34, 26, 26') in a distributed computing system, the method comprising:

- periodically sending checkpoint information from primary server to a secondary server (see col. 5, lines 6-20);
- receiving an indication that a state of the distributed computing system has changed (receiving an election request or detecting a node/server of the distributed system has failed) (see col. 4, lines 20-31);
- in response to the indication, determining if there is not already a node hosting the primary server for the service(see col. 4, lines 32-54); and
- if there is not already a node hosting the primary server, selecting a node to host the primary server based upon rank information for the nodes (see col. 4, lines 20-54 and col. 5, lines 20-48), wherein the rank information specifies whether the selected node is secondary server which has received the checkpoint information, whereby the secondary server is able to take over for the primary server without having to wait to receive additional configuration information(see col. 4, lines 20-54).

In considering claim 26, Pedersen disclose an apparatus, wherein, in selecting a node to host the

primary server based upon rank information, the selecting mechanism is configured to:

communicate rank information between the given node and other nodes in the distributed computing system, wherein each node in the distributed computing system has a unique rank with respect to the other nodes in the distributed computing system (see col. 4, lines 20-54 an col. 5, lines 31-48), and

to compare a rank of the given node with a rank of the other nodes in the distributed computing system(see col. 4, lines 20-54 an col. 5, lines 31-48).

In considering claim 27, Pedersen disclose an apparatus, further comprising a disqualification mechanism that is configured to disqualify the given node from hosting the primary server if one of the other nodes in the distributed computing system has a higher rank than the given node (see col. 4, lines 20-54 and col. 5, lines 31-48).

In considering claim 28, Pedersen discloses an apparatus further comprising, if there exists a node that is configured to host the primary server, allowing the node that is configured to host the primary server to communicate with other nodes in the distributed computing system in order to disqualify (remove) the other nodes from hosting the primary server (see col. 5, lines 6-20).

In considering claim 29, Pedersen discloses an apparatus, wherein assuming that the given node hosts the primary server involves:

maintaining a candidate variable in the given node identifying a candidate node to host the primary server (using unsigned short word in which bits are flags to indicate a node is statically configuring to be a master server) (see col. 4, lines 55 to col 5, lines 5); and

initially setting the candidate variable to identify the given node (see col. 4, lines 55 to col 5, lines 5).

In considering claim 30, Pedersen discloses an apparatus further comprising, after a new node has been selected to host the primary server, if the new node is different from a previous node that hosted the primary server, establishing connections for the service to the new node (see col. 5, lines 49-54 and col. 6, lines 37-61).

In considering claim 31, Pedersen apparatus a system further comprising, after a new node has been selected to host the primary server, if the new node is different from a previous node that hosted the primary server, configuring the new node to host the primary server for the service (see col. 5, lines 49-54 and col. 6, lines 37-61).

In considering claim 32, Pedersen discloses an apparatus further comprising restarting the service if the service was interrupted as a result of the change in state of the distributed computing system (that is establishing or re-mapping connections to point to the new master node once new master node is selected) (see col. 5, lines 49-54 and col. 6, lines 337-61).

In considering claim 33, Pedersen discloses an apparatus, wherein the given node (34, 26, 26', 26") in the distributed computing system (10) acts as one of:
a host for the primary server for the service (see fig. 1, and col. 2, line 54 to col. 3, line 4 where a given node 34 acts as master server for the service).

Note: Examiner only considers the limitation, wherein the given node acts as host for the primary server for the service (see claim objections above).

In considering claim 34, Pedersen discloses an apparatus further comprising, upon initial startup of the service (upon re-booting of service) selecting a highest ranking spare (highest ranking standalone application server 26' or 26") to host the primary server for the service (see col. 5, lines 6-20).

In considering claim 35, Pedersen discloses an apparatus further comprising allowing the primary server (master computer) to configure spares (application servers 26' and 26") in the distributed computing system to host secondary servers (26) for the service (see col. 4, lines 55 to col. 5, line 5, and col. 2, lines 54 to col. 3, line 4, where any of the application servers 34, 26, 26' and 26" can be statically configured to a given rank i.e., primary server etc, based on a predetermined criteria such that when the primary server fails the application server with second highest criteria e.g. NT domain controller, 26 or 26' with the highest ranking will replace the failed master server).

In considering claim 36, Pedersen discloses an apparatus, wherein comparing the rank of the given node with the rank of the other nodes in the distributed computing system involves considering a host for the primary server (34) to have a higher rank than a host for a spare (server 26') and considering a host for a secondary server (26) to have a

higher rank than a spare (26')(see col. 4, lines 35 to col. 5, line 5, where each node of the network maintains an election criteria which can be statically configured).

In considering claim 37, Pedersen discloses a apparatus wherein the selecting mechanism is configured to cease to communicate rank information between the given node and the other nodes in the distributed computing system after the given node is disqualified by the disqualification system (that is if a given node has a lower criteria then the given node dropping out of the election process) (see col. 5, lines 31-48).

As per claim 38, Pedersen discloses a method for selecting a node to host a primary server for a service from a plurality of nodes in a distributed computer system, comprising:

- periodically sending checkpoint information from primary server to a secondary server (see col. 5, lines 6-20);
- communicating disqualification information (election information) between the node and remaining nodes in the plurality of nodes (see fig. 4, and col. 5, lines 6-54);
- disqualifying (removing or dropping) the node from hosting the primary server based upon the disqualification information received from the remaining nodes (see fig. 4, and col. 5, lines 6-54).

In considering claim 39, Pedersen discloses a method, wherein the disqualification information comprises a node rank information (see col. 32-54).

In considering claim 40, Pedersen discloses a method wherein the node rank for a given node is

calculated using an assumption that the given node hosts the primary server (see col. 2, lines 54-66).

In considering claim 41, Pedersen discloses a method, wherein the calculated node rank is

unique with respect to the ranks of other nodes (i.e. NT domain controller) in the distributed computer system (see col. 4, lines 55-65).

In considering claim 42, Pedersen discloses a method, wherein the disqualifying of the node comprises:

comparing a rank of the node to a set of ranks of the remaining nodes in the distributed computer system (see fig. 4, and col. 5, lines 6-54); and

disqualifying the node from hosting the primary server if one of the set of ranks of the remaining nodes is higher than the rank of the node (see fig. 4, and col. 5, lines 6-54).

In considering claim 43, Pedersen disclose a method further comprising repeating the acts of communicating disqualification information and disqualifying the node for at least one more node in the plurality of nodes. (see fig. 4, and col. 5, lines 6-54).

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

CONCLUSION

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salad E Abdullah whose telephone number is 571-272-4009. The examiner can normally be reached on 8:30 - 5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aria Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abdullah Salad
Examiner Art Unit 2157
12/20/2004

ARIO ETIENNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100